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Perkins Coie LLP
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EXAMINER

ZIMMERMAN, GLENN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/803,625

Applicant(s)

GALLITOGNOTTA ET AL.

Examiner

Glenn Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 15, 17-23 and 29-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15, 17-23 and 29-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Amendment, filed on March 1, 2005, has been entered and acknowledged by the examiner.

Allowable Subject Matter

The indicated allowability of claims 1-7, 15 and 17-23 is withdrawn in view of the newly discovered reference(s) to Slack et al. U.S. Patent 2,295,694 and Matsumoto U.S. Patent 5,926,977. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al. U.S. Patent 5,962,977.

Regarding claim 1, Matsumoto et al. disclose a cathode (**ref. 14 electrode**), the cathode formed by a cylindrical hollow part (**col. 3 lines 33-35 ref. 20**) closed at a first end and open at a second end (**see Fig. 2**), wherein an outer and inner surface portion

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of the cylindrical hollow part includes a layer of getter material (**electron emission material ref. 21 lithium is a know getter material**).

Regarding claim 2, Matsumoto et al. disclose wherein the cylindrical hollow part is made essentially of metal (**col. 3 lines 33-35 ref. 20**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Slack et al. U.S. Patent 2,295,694.

Regarding claim 1, Evans et al. teaches a cathode, the cathode formed by a cylindrical hollow part closed at a first end and open at a second end, but fails to teach wherein an inner surface portion of the cylindrical hollow part includes a layer of getter material. Evans in the analogous art teaches wherein an inner surface portion of the cylindrical hollow part includes a layer of getter material (**col 7 lines 25-30**).

Additionally, Evans et al. teach incorporation of such a internal getter coating to improve lamp gettering (**col. 7 line 16; col. 8 lines 24-30**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein an inner surface portion of the

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cylindrical hollow part includes a layer of getter material in the lamp electrode of Evans, since such a modification would improve lamp gettering as taught by Evans et al.

Regarding claim 1, Evans et al. teach all the limitations of claim 1, but fails to teach wherein an outer surface portion of the cathode part includes a layer of getter material. Slack et al. in the analogous art teaches wherein an outer surface portion of the cathode part includes a layer of getter material (**getter Fig. 2 ref. 15**). Additionally, Slack et al. teach incorporation of such a outer surface portion getter material layer to improve water-vapor absorbing/gettering of the lamp (**col. 1 line 48**) and absorption of residual vapor (**col. 1 line 3**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein an outer surface portion of the cathode part includes a layer of getter material in the cathode of Evans et al, since such a modification would improve water-vapor absorbing, residual vapor absorbing /gettering of the lamp as taught by Slack et al.

Regarding claim 2, Evans et al. disclose the cathode of claim 1, wherein the cylindrical hollow part is made essentially of metal (**col. 4 lines 27-32; niobium etc**).

Regarding claim 3, Evans et al. disclose the cathode of claim 2, wherein the metal includes material chosen from among the group consisting of nickel molybdenum, tantalum and niobium (**col. 4 lines 27-32**).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Slack et al. U.S. Patent 2,295,694 and Takao et al. U.S. Patent 6,121,729.

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Regarding claim 4, Evans and Slack et al. teaches all the limitations of claim 4, but fails to teach wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum. Takao et al. in the analogous art teaches wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum (**col. 2 lines 60-62**). Additionally, Takao et al. teaches incorporation of such a layer to improve gettering and gaseous absorption of impurities of the lamp (**col. 2 line 61; col. 3 lines 33-38**). Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum in the getter of Evans and Slack et al., since such a modification would improve gettering and gaseous absorption of impurities of the lamp as taught by Takao et al.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matusmoto et al. U.S. Patent 5,962,977 and Takao et al. U.S. Patent 6,121,729.

Regarding claim 4, Matsumoto et al. teaches all the limitations of claim 4, but fails to teach wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum. Takao et al. in the analogous art teaches wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum (**col. 2 lines 60-62**). Additionally,

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Takao et al. teaches incorporation of such a layer to improve gettering and gaseous absorption of impurities of the lamp (**col. 2 line 61; col. 3 lines 33-38**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum in the getter of Matsumoto et al, since such a modification would improve gettering and gaseous absorption of impurities of the lamp as taught by Takao et al.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Slack et al. U.S. Patent 2,295,694 and Hanada U.S. Patent 3,549,937.

Regarding claim 5, Evans and Slack et al. teaches all the limitations of the claim 5, but fails to teach wherein the getter material is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum. Hanada in the analogous art teaches a getter material is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum (**abstract choose aluminum and nickel and zirconium**). Additionally, Hanada teaches incorporation of such a getter material is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum to improve gettering i.e. absorption of oxygen, conductivity, reduction of the formation of an end band and to avoid the increase of an anode spot (**col. 1 lines 35-41**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a getter material that is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum in the getter material of Evans and Slack et al., since such a modification would improve gettering i.e. absorption of oxygen, conductivity, reduction of the formation of an end band and to avoid the increase of an anode spot as taught by Hanada.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Slack et al. U.S. Patent 2,295,694 and Saikatsu et al. U.S. Patent 4,461,981.

Regarding claim 6, Evans and Slack et al. teaches all the limitations of the claim, but fails to teach getter material formed by cathodic deposition. Saikatsu et al. in the analogous art teaches getter material is formed by cathodic deposition (**col. 7 lines 30-37**). Additionally, Saikatsu et al. teaches incorporation of such a sputtered getter coating to improve the lamp structure by providing a getter layer that will provide adequate gettering for a lamp and it also provides a coating over desired areas through flash (**col. 7 lines 1-5**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a sputtered getter coating in the getter coating of Evans and Slack et al., since such a modification would improve the lamp structure by providing a getter layer that will provide adequate gettering for a lamp and it also provides a coating over desired areas through flash as taught by Saikatsu et al.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Slack et al. U.S. Patent 2,295,694 and Giorgi U.S. Patent 5,242,559.

Regarding claim 7, Evans and Slack teaches all the limitations of claim 7, but fails to teach getter material is formed by electrophoretic deposition. Giorgi in the analogous art teaches getter material is formed by electrophoretic deposition (**abstract**). Additionally, Giorgi teaches incorporation of such a getter material is formed by electrophoretic deposition to improve the gettering cost by avoiding the use of excessive amounts of getter material (**col. 2 lines 52 and 53**), to prevent the need for costly or complicated production equipment (**col. 2 line 56-57**), provide a method suitable for mass production (**col. 2 line 60**) and allow for getting devices which have practically any shape and size of support (**col. 3 lines 1 and 2**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use electrophoretic getter deposition in the electrode of Evans and Slack, since such a modification would improve the gettering cost by avoiding the use of excessive amounts of getter material, to prevent the need for costly or complicated production equipment, provide a method suitable for mass production and allow for gettering devices which have practically any shape and size of support as taught by Giorgi.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Slack et al. U.S. Patent 2,295,694 and Almer U.S. Patent 3,582,702.

Regarding claim 15, Evans and Slack et al. teach all the limitations of the claim 15, but fail to teach wherein the layer of getter material is less than 20 microns thick. Almer in the analogous art teaches wherein the layer of getter material is less than 20 microns thick (**col. 4 lines 56-58; 10 microns**). Additionally, Almer teaches incorporation of such a layer of getter material is less than 20 microns thick to improve gas binding (**col. 4 line 58**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the layer of getter material is less than 20 microns thick in the cathode of Evans and Slack, since such a modification would improve gas binding as taught by Almer.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matusmoto et al. U.S. Patent 5,962,977 and Almer U.S. Patent 3,582,702.

Regarding claim 15, Matsumoto et al. teach all the limitations of the claim 15, but fail to teach wherein the layer of getter material is less than 20 microns thick. Almer in the analogous art teaches wherein the layer of getter material is less than 20 microns thick (**col. 4 lines 56-58; 10 microns**). Additionally, Almer teaches incorporation of such a layer of getter material is less than 20 microns thick to improve gas binding (**col. 4 line 58**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the layer of getter material is less than 20 microns thick in the cathode of Matusmoto, since such a modification would improve gas binding as taught by Almer.

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Claims 17-19, 29, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726.

Regarding claim 17, Evans et al. teach a cathode, the cathode formed by a cylindrical hollow part (**cylindrical cap Fig. 2 ref. 28; claim 5 and 17**) closed at a first end and open at a second end (**See Fig. 2**), and wherein a portion of the surface near the first end of the cathode is free of the layer of getter material (**the examiner notes that the outer surface near the cylindrical hollow part there is a portion of the surface without getter material**), but fails to teach wherein on an outer or inner portion of the surface of the cylindrical hollow part is present a layer of getter material. Evans in the analogous art teaches wherein on an outer or inner portion of the surface of the cylindrical hollow part is present a layer of getter material (**col 7 lines 25-30**). Additionally, Evans et al. teach incorporation of such a internal getter coating to improve lamp gettering (**col. 7 line 16; col. 8 lines 24-30**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein on an outer or inner portion of the surface of the cylindrical hollow part is present a layer of getter material in the lamp electrode of Evans, since such a modification would improve lamp gettering as taught by Evans et al.

Regarding claim 18, Evans et al. disclose the cathode of claim 17, wherein the cylindrical hollow part is made essentially of metal (**col. 4 lines 27-32; niobium etc**).

Regarding claim 19, Evans et al. disclose the cathode of claim 18 wherein the metal includes material chosen from among the group consisting of nickel molybdenum, tantalum and niobium (**col. 4 lines 27-32**).

Regarding claim 29, Evans discloses wherein the a portion of the surface near the second end is at least partially covered by the layer of getter material (**col. 7 lines 25-30**). This claim is rejected for the same reasons found in claim 17. The examiner notes the internal surface of the can is coated with 8488. Therefore the getter coating will be at least partially covered by the layer of getter material near the second end. The examiner notes that Evans does not write partially coated internal surface.

Regarding claim 30, Evans discloses wherein the getter layer is present on the inner portion of the surface (**col. 7 lines 25-30**). This claim is rejected for the same reasons found in claim 17.

Regarding claim 33, Evans discloses wherein a portion of the surface near the second end of the cathode is free of the layer of getter material. The examiner notes that the outer surface of Evans cylindrical cup (**ref. 28**) of electrode does not have a getter layer on it, so therefore the portion of the outer surface near the second end is free of the layer of getter material.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Takao et al. U.S. Patent 6,121,729.

Regarding claim 20, Evans et al. teaches all the limitations of claim 20, but fails to teach wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and

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tantalum. Takao et al. in the analogous art teaches wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum (**col. 2 lines 60-62**). Additionally, Takao et al. teaches incorporation of such a layer to improve gettering and gaseous absorption of impurities of the lamp (**col. 2 line 61; col. 3 lines 33-38**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the layer of getter material is formed of a metal selected among the group consisting of: titanium, vanadium, yttrium, zirconium, niobium, hafnium and tantalum in the getter of Evans et al., since such a modification would improve gettering and gaseous absorption of impurities of the lamp as taught by Takao et al.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Hanada U.S. Patent 3,549,937.

Regarding claim 21, Evans et al. teaches all the limitations of the claim 21, but fails to teach wherein the getter material is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum. Hanada in the analogous art teaches a getter material is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum (**abstract choose aluminum and nickel and zirconium**). Additionally, Hanada teaches incorporation of such a getter material is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum to improve gettering i.e. absorption

of oxygen, conductivity, reduction of the formation of an end band and to avoid the increase of an anode spot (**col. 1 lines 35-41**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a getter material that is an alloy that includes zirconium or titanium combined with one or more elements selected among the group of transition metals and aluminum in the getter material of Evans et al., since such a modification would improve gettering i.e. absorption of oxygen, conductivity, reduction of the formation of an end band and to avoid the increase of an anode spot as taught by Hanada.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Saikatsu et al. U.S. Patent 4,461,981.

Regarding claim 22, Evans et al. teaches all the limitations of the claim, but fails to teach getter material formed by cathodic deposition. Saikatsu et al. in the analogous art teaches getter material is formed by cathodic deposition (**col. 7 lines 30-37**). Additionally, Saikatsu et al. teaches incorporation of such a sputtered getter coating to improve the lamp structure by providing a getter layer that will provide adequate gettering for a lamp and it also provides a coating over desired areas through flash (**col. 7 lines 1-5**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a sputtered getter coating in the getter coating of Evans et al., since such a modification would improve the lamp structure by

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providing a getter layer that will provide adequate gettering for a lamp and it also provides a coating over desired areas through flash as taught by Saikatsu et al.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 in view of Giorgi U.S. Patent 5,242,559.

Regarding claim 23, Evans teaches all the limitations of claim 23, but fails to teach getter material is formed by electrophoretic deposition. Giorgi in the analogous art teaches getter material is formed by electrophoretic deposition (**abstract**). Additionally, Giorgi teaches incorporation of such a getter material is formed by electrophoretic deposition to improve the gettering cost by avoiding the use of excessive amounts of getter material (**col. 2 lines 52 and 53**), to prevent the need for costly or complicated production equipment (**col. 2 line 56-57**), provide a method suitable for mass production (**col. 2 line 60**) and allow for getting devices which have practically any shape and size of support (**col. 3 lines 1 and 2**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use electrophoretic getter deposition in the electrode of Evans, since such a modification would improve the gettering cost by avoiding the use of excessive amounts of getter material, to prevent the need for costly or complicated production equipment, provide a method suitable for mass production and allow for gettering devices which have practically any shape and size of support as taught by Giorgi.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. U.S. Patent 5,856,726 and Slack U.S. Patent 2,295,694.

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Regarding claim 31, Evans et al. teach all the limitations of claim 31, but fails to teach wherein the getter layer is present on the outer portion of the surface. Slack et al. in the analogous art teaches wherein the getter layer is present on the outer portion of the surface (**getter Fig. 2 ref. 15 centered from either end**). Additionally, Slack et al. teach incorporation of such an outer surface portion getter material layer to improve water-vapor absorbing/gettering of the lamp (**col. 1 line 48**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein an outer surface portion of the cathode part includes a layer of getter material in the cathode of Evans et al, since such a modification would improve water-vapor absorbing/gettering of the lamp as taught by Slack et al.

Regarding claim 32, Slack discloses wherein the getter layer is present on the outer portion of the surface. This claim is rejected for the same reasons found in claim 32.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vollmer U.S. Patent 3,560,790 disclose Alkali Metal Cathode Lamps. Thomas U.S. Patent 1,842,215 discloses an Electrode for Gaseous Discharge Devices. The examiner comments regarding

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (571) 272-2466. The examiner can normally be reached on M-W 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Glenn Zimmerman



Vip Patel
Primary Examiner
AU 2879